

FIELD GUIDEBOOK  
to  
ENVIRONMENTS OF COAL FORMATION  
IN  
SOUTHERN FLORIDA

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peat block is usually six to eight feet in thickness. The blocks tend to be steep sided. In some instances the sides are essentially vertical, as they are in the small Cormorant Pass island shown in Figure 21. Even more extreme cases can be observed in which the block is actually undercut to some degree. As might be expected, the vertical sides and undercut conditions are encountered where the islands are located in areas swept by the higher velocity currents. A more typical island is the one lying just to the east of Midway Pass (Figure 22). The sides of this island are clearly erosional features but they dip more gently into the water and under the recently deposited bay sediments.

No evidence has been found indicating that the area occupied by the islands is increasing. Instead, the opposite appears to be occurring. Not only are islands being dissected as suggested above, but several shown on the 1953 charts and aerial photographs of the area have been reduced in area and a few have been completely destroyed. A cruise through Whitewater Bay will reveal islands in all stages of destruction.

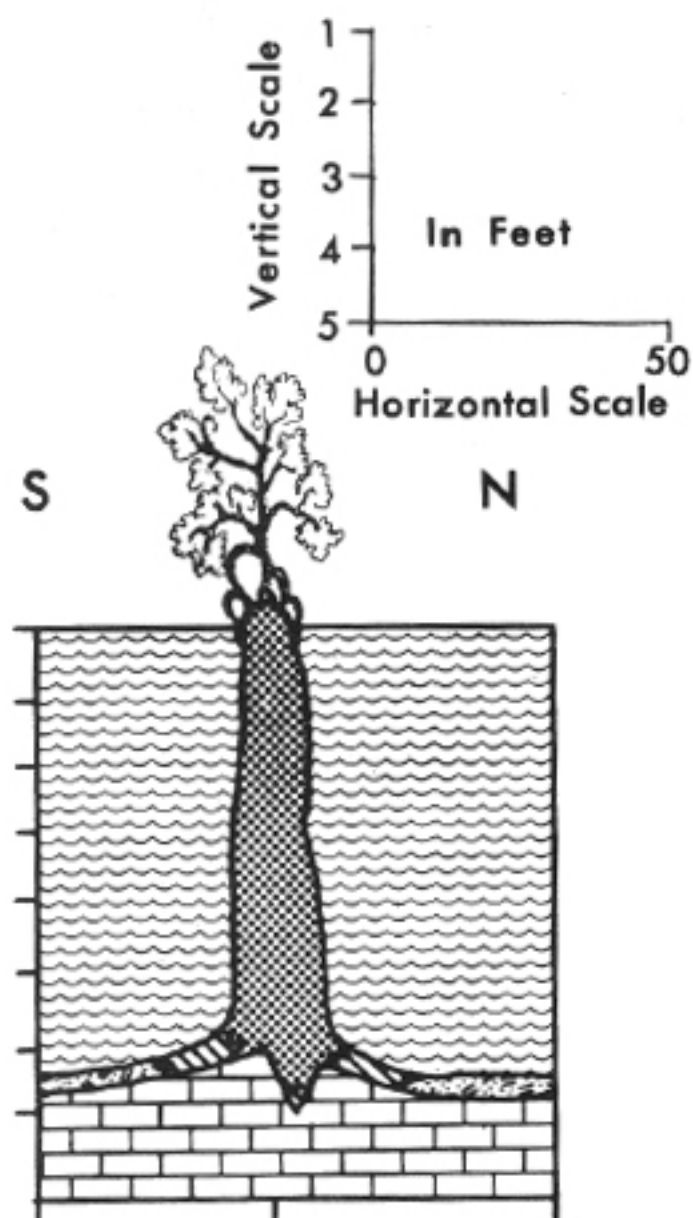
The surface peat at Stop 8 is a good example of red mangrove peat. It is unlikely that peat is accumulating at this site at the present time. Although no radiocarbon dates have been obtained from the surface peat on Midway Key, it is estimated that this material would be found to be 500 to 1000 years old. The roots of the red mangrove appear to make an important contribution to the peat mass. This may be the result of the tidal wash that bathes the surface twice a day removing large quantities of surface litter. If protected from effective tidal wash, a somewhat different type of peat might result.

The peats and other sediments of this area can be sampled in a variety of ways. For pollen studies either the Hiller or Davis Borer has proved satisfactory. If uncompressed core samples are required, an aluminum or plastic tube is forced into the sediment while maintaining an air-tight plunger in the tube at the ground level (Plate X).

#### STOP 9: Tarpon Creek Site

##### Objectives:

- A. Inspection of marine marl, peat, fresh-water marl stratigraphic sequence.

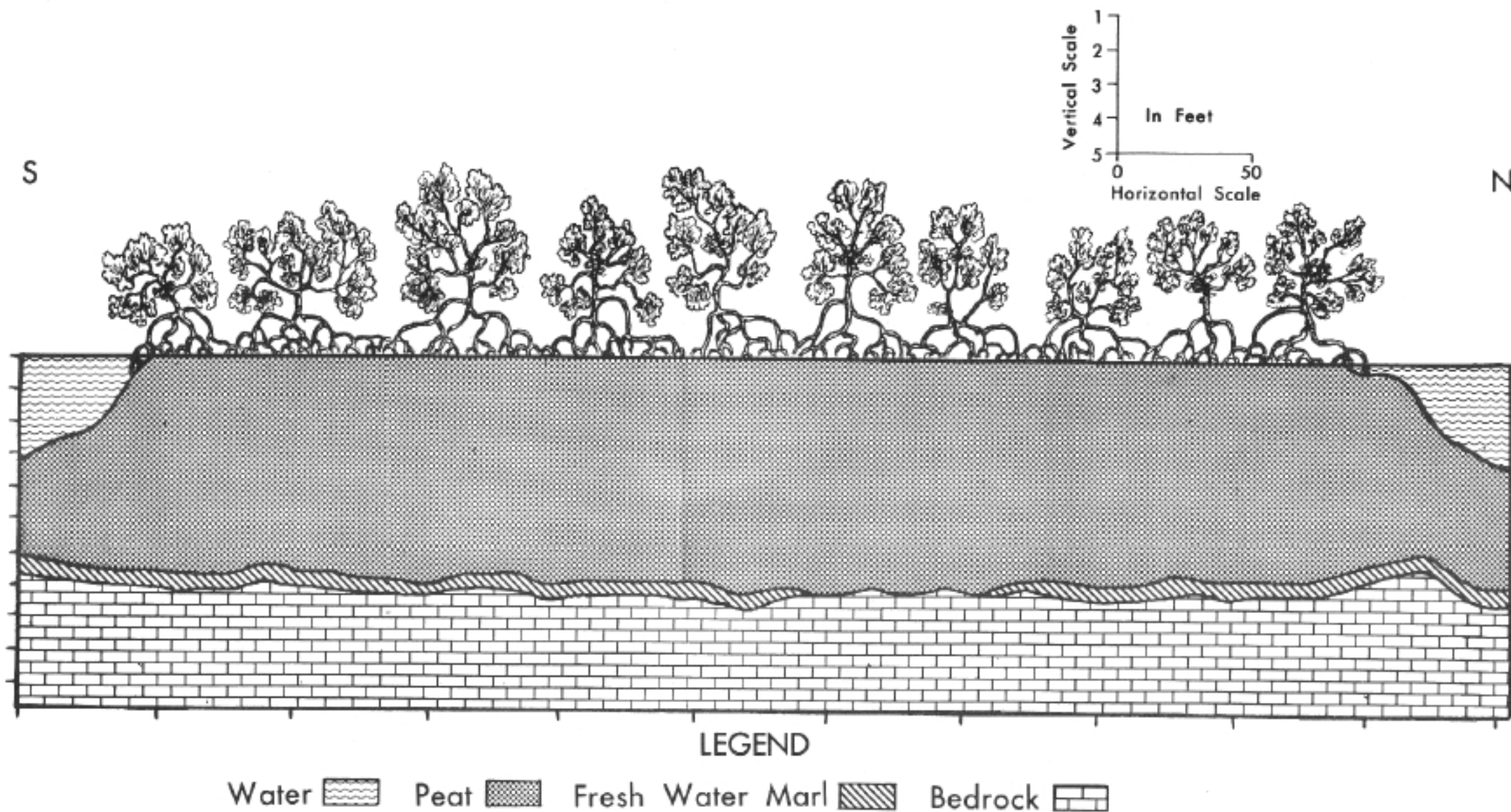


### LEGEND



## SECTIONAL PROFILE THROUGH ISLAND IN CORMORANT PASS

Figure 21



SECTIONAL PROFILE THROUGH TYPICAL ISLAND IN WHITEWATER BAY

Figure 22



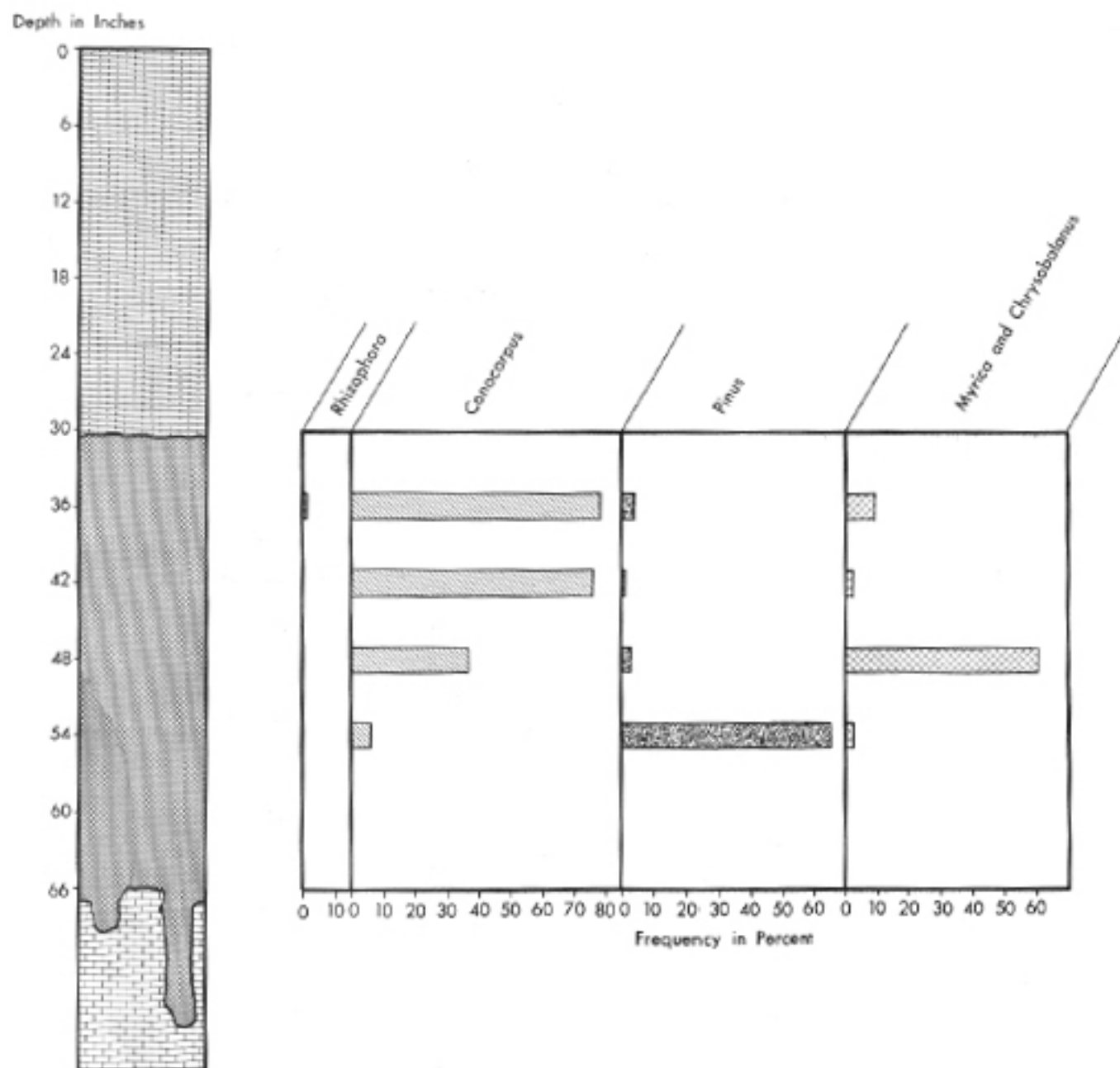
PLATE X

B. Discussion of the southwestern margin of Whitewater Bay.

Discussion:

As one moves southward from the Lane Bay - Hell's Bay area, the peat disappears from the surface and becomes buried under a calcareous sediment that has been interpreted as having a marine origin. The composition and origin of this sediment will be discussed in detail on some of the following pages. If a southwesterly course is taken from the Lane Bay area, one must travel much farther before the marine marl - peat contact is encountered on the ground surface. The entire southwestern shore of Whitewater Bay along the Joe River is formed of a thick peat mass. In the western half of Cape Sable peat remains at the surface for at least three miles southwest of Joe River where it is more than nine feet thick.

At Stop 9 the marine marl mixed with a small amount of plant debris covers the peat to a depth of 31 inches. Below this lies 38 inches of peat resting either directly on the bedrock or on a thin layer of freshwater marl. As shown in Figure 23, the most frequently encountered pollens in the peat are those of Conocarpus, Chrysobalanus and Pinus. Rhizophora pollen was encountered 7 inches beneath the top of the peat and appeared to increase in abundance as the upper peat layer is approached. The presence of grass, sedge and pine pollen near the base of the peat, in the proportions in which they occur, suggests the presence of a freshwater open saw grass type of environment. The gradual increase in Conocarpus and the appearance of Rhizophora near the top of the peat is evidence of a gradual transgression of more marine conditions. The peat - marine marl contact is clearly disconformable. This, plus the absence of higher concentrations of Rhizophora in the peat, indicates erosion of a portion of the upper peat mass prior to burial with the marine marl.



FREQUENCY OF THE COMMON POLLENS IN THE SUB-MARL PEAT NEAR TARPON CREEK  
Figure 23